

What is claimed is:

1. An apparatus for strengthening the abdomen and lower back of a human comprising
 - a) a pad,
 - b) signal means for producing a signal,
 - c) detection means for determining a weight applied to said pad and activating said signal means when said weight exceeds a predetermined weight,
 - d) means for producing an output when said detection means determines said weight, and
 - e) means for recording said output.
2. The apparatus of claim 1 further comprising
 - f) a processor in communication with said means (d) to receive said output, and
 - g) an output device in communication with said processor (e).
3. A system for use in teaching neutral spine to a passenger in a vehicle, said system comprising
 - a) a seat including
 - i) an upright portion adapted to contact at least a portion of a back of a user, said upright portion including detection means for determining the position of at least a portion of a back of a user with respect to said upright portion, and
 - ii) a cushion portion, and
 - b) signal means for producing a signal, said signal means being activated when said detection means determines that said portion of said back is in a preselected position with respect to said upright portion.
4. The system of claim 3 wherein said signal means are incorporated within said upright portion of said seat.

5. The system of claim 3 which is mounted within a vehicle including at least one element selected from the group consisting of a sound system, a powered window, a horn, a light and an air conditioner, wherein said signal means produce a signal that activates said at least one element.

6. The system of claim 3 which is an article of manufacture selected from the group consisting of a wheelchair, an automobile seat and an aircraft seat.

7. A method of strengthening the abdomen and lower back of a human comprising the steps of:

- i) contacting the back of a person to be strengthened to an apparatus comprising
 - a) a pad having a longitudinal axis, proximal and distal ends and an upper surface,
 - b) a head rest adjustably affixed to said proximal end of said pad,
 - c) at least one vibrating unit affixed to said pad, said vibrating unit being in spaced relationship to said head rest, and
 - d) detection means for detecting a weight applied to said pad and activating said signal means when said weight is less than a predetermined weight, said detection means and said signal means being affixed to said pad adjacent each other,
- ii) adjusting the position of said head rest on said pad to align said head rest with the neck of the person to be strengthened and simultaneously align said at least one vibrating unit and said detection means with the lumbar region of the person to be strengthened,
- iii) compressing the lumbar region of the person to be strengthened to contact said detection means, whereby said detection means in response to said compression activates said at least one vibrating unit, and
- iv) compressing and relaxing the abdomen of the person to be strengthened while maintaining compression of the lumbar region of the person to be strengthened, whereby said at least one vibrating unit continues to vibrate throughout said abdominal compression and relaxation.

8. The method of claim 7 wherein said pad is placed on a horizontal surface and the person to be strengthened lies on said upper surface of said pad.

9. The method of claim 8 wherein said pad is affixed to a vertical surface and the person to be strengthened stands against said upper surface of said pad.

10. A method of strengthening the abdomen and lower back of a human and producing a record of said strengthening, the method comprising the steps of:

- i) contacting the back of a person to be strengthened to an apparatus comprising
 - a) a pad,
 - b) signal means for producing a signal, and
 - c) detection means for determining a weight applied to said pad and activating said signal means when said weight exceeds a predetermined weight,
- ii) compressing the lumbar region of the person to be strengthened to contact said detection means, whereby a weight is applied to said pad, and compressing and relaxing the abdomen of the person to be strengthened while maintaining compression of the lumbar region,
- iii) determining the weight applied to said pad as a result of said contact and producing an output corresponding to said weight, and
- iv) recording said output.

11. The method of claim 10 further comprising the steps of

- v) transmitting said output to a processor, and
- vi) converting said output to a human-readable or machine-readable form using said processor.

12. A method of strengthening the back of a human user comprising the steps of:
 - i) providing an apparatus including
 - a) a pad,
 - b) signal means for producing a signal, and
 - c) detection means for determining a weight applied to said pad and activating said signal means when said weight exceeds a predetermined weight, said detection means including (1) means for selectably specifying said predetermined weight, (2) a counter, and (3) means for selectably specifying a maximum counter value,
 - ii) initializing said apparatus by specifying said predetermined weight and maximum counter value and setting said counter to an initial value,
 - ii) contacting the back of the user to said apparatus whereby a weight is applied to said pad,
 - iii) compressing the lumbar region of the person to be strengthened to contact said detection means, whereby a weight is applied to said pad, and compressing and relaxing the abdomen of the person to be strengthened while maintaining compression of the lumbar region,
 - iv) determining the weight applied to said pad as a result of said contact and producing a first output corresponding to said weight,
 - v) transmitting said first output to a processor,
 - vi) processing said first output to compare said weight applied to said pad with said predetermined weight,
 - vii) increasing the value of said counter when said weight at least equals said predetermined weight, and
 - viii) increasing at least one of said predetermined weight and said maximum counter value when said counter value equals said maximum counter value.

13. A method of strengthening the back of a human user comprising the steps of:
 - i) providing an apparatus including
 - a) a pad,
 - b) signal means for producing a signal, and
 - c) detection means for determining a weight applied to said pad and activating said signal means when said weight exceeds a predetermined weight, said detection means including (1) means for selectably specifying said predetermined weight, (2) a counter, and (3) means for selectably specifying a maximum counter value,
 - ii) initializing said apparatus by specifying said predetermined weight and maximum counter value and setting said counter to an initial value,
 - ii) contacting the back of the user to said apparatus whereby a weight is applied to said pad,
 - iii) determining the weight applied to said pad as a result of said contact and producing a first output corresponding to said weight,
 - iv) transmitting said first output to a processor,
 - v) converting said first output to a human-readable form using said processor and transmitting said converted first output to an output device,
 - vi) observing said output device to determine whether said weight applied to said pad at least equals said predetermined weight, and
 - vii) advising said user to alter the user's contact with said apparatus when said weight applied to said pad is less than said predetermined weight.